**TECHNICAL UNIVERSITY**



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**1.Introduction**

The aim for this project is design and implement using OpenCV library a program to detect road signs from various images.

**2.Design**

For the image processing part of the project, a good approach to detecting road signs is to have an already established database of those and compare them with the fetched road sign from our source image and see if they match at least 90%.

As the road signs are universal in color, we can fetch those respective colors out of the image. Doing this, we have to take into consideration that there could be different shades of the color (because of shadows, light, etc.) in the source image which could not be detected. In order to bypass this problem, the source image can be transformed from RGB space to HSV space so the pure color(H) can be detected. The H value from the database image will be compared with the H value of the source image. The S and V components of the image can also be used in some way to better approximate the road sign. We can also improve the detection by selecting a range of colors(a threshold) that are treated as valid.

Lastly, we need some sort of edge detection (that means detecting when there is a big color change from one pixel to another) to see where the road sign edges begin and end. After this detection has taken place, we need to compare the edges of each object and see if it matches at least 90%.

So the basic algorithm would be:

1. Transfer the source image to HSV
2. Compare the colors with the predefined road sign colors and adjust with a threshold.
3. Fetch the road sign from the source image
4. Compare the edges with the database images.

**3.Implementation**

**4.Results**

**5.Conclusions**